

SOME SPECIES OF THE BEE GENUS COELIOXYS.

By J. C. CRAWFORD.

This paper discusses only species occurring in America north of Mexico and no table to separate the males has been included since Prof. T. D. A. Cockerell published a table for this sex in the Canadian Entomologist for June, 1912, pp. 167-170. The key to the females includes all the species for the region under consideration in which the female sex has been described. In the table here presented the characters used for separating *rufitarsis* Sm. from *comstockii* Cress. and *lucrosa* Cress. from *moesta* Cress. are the characters used by Prof. Cockerell in a table to separate the types of the Cressonian species and some non-Cressonian species which he consulted in the collection in Philadelphia. The illustrations were made with a camera lucida, attached to a Zeiss binocular microscope.

1. Last ventral segment not notched laterally, at most emarginate and the part anterior of the emargination not pointed..... 2
 Last ventral segment notched, the part anterior of notch sharply pointed. 19
2. Last dorsal segment with the end upturned into a small spicule..... 3
 Last dorsal segment not upturned at apex..... 7
3. Last dorsal segment very sparsely punctured at base..... *obtusiventris* n. sp.
 Last dorsal segment closely punctured at base..... 4
4. Punctures of first dorsal abdominal segment separated by less than a punctured width..... 5
 First dorsal abdominal segment sparsely punctured..... 6
5. First recurrent vein received by second submarginal cell almost half as far from base as length of first transverse cubital in the ♂ and slightly less in ♀..... *gilensis* Ckll.
 First recurrent vein received by second submarginal cell one-third or less as far from base as length of first transverse cubital in ♀ and still less in ♂..... *deani* Ckll.
6. Here run *modesta* Sm. and *scitula* Cress., the descriptions affording no points for separation.
7. Last ventral segment towards apex with a long strong fringe of hairs along margin..... 8
 Last ventral segment not strongly fringed..... 12
8. Legs black..... 9
 Legs, except coxae, red..... 11
9. Last dorsal segment without a median carina or this only indicated at tip..... 10
 Last dorsal segment with a median carina..... *angelica* Ckll.
10. Penultimate ventral segment with small punctures interspersed among the larger ones..... *apacheorum* Ckll.
 Penultimate ventral segment without smaller punctures among the others..... *alternata* Sm.
11. Fourth antennal joint distinctly longer than third; last ventral segment with subparallel sides and a broadly rounded apex..... *texana* Cress.
 Fourth antennal joint hardly longer than third; last ventral segment with the sides converging apically and apex more narrowly rounded. *hunteri* n. sp.

12. Last dorsal segment near apex with two small flattened projections pointed caudad..... *piercei* n. sp. 13
 Last dorsal segment without projections on disk..... 13a
13. Legs red..... 13a
 Legs dark..... 14
- 13a. Front at top of inner orbits with a swollen granular area, narrowed centrad and extending to lateral ocelli..... *deplanta* Cress.
 Front without such a spot, being coarsely punctured, not different from surrounding area..... *sculptifrons* n. sp.
14. Scutellum strongly triangularly produced, medially almost impunctured. *dolichos* Fox
 Scutellum medially closely punctured and not strongly produced..... 15
15. Last ventral segment with the sides entire..... *alternata* Cress. 16
 Last ventral segment with the sides emarginate..... 16
16. Thorax above with lines of appressed pubescence..... 17
 Thorax above with only erect hairs..... 18
17. "Scutellum medially produced into a tubercle"..... *aperta* Cress.
 Scutellum medially not produced into a tubercle..... *grindeliae* Ckll.
18. Pubescence white..... *ribis* Ckll.
 "Pubescence ochreous; basal part of third abdominal segment more sparsely punctured than in above"..... *ribis* var. *kincaidii* Ckll.
19. Clypeus near apex bilobed (viewed from above i. e. not emarginate at apex)..... 20
 Clypeus flat or convex..... 21
20. Transverse furrows on segments 2 and 3 deep; punctures on middle of segment 2 basad of furrow close, separated by about a puncture width; arcuate edge of pronotum much more strongly produced, translucent; legs red..... *novomexicana* Ckll.
 Transverse furrows on segments 2 and 3 shallow; punctures on middle of segment 2 basad of furrow separated by much more than a puncture width; arcuate edge of pronotum not strongly produced, black; legs with femora usually dark..... *sayi* Robt.
21. Clypeus medially triangularly produced and somewhat reflexed, *banksi* n. sp.
 Clypeus apically truncate, gently round, emarginate or tuberculate..... 22
22. Basal abdominal segment at least entirely red..... 23
 Basal abdominal segment black (at most with sides red)..... 25
23. Scutellum sparsely punctured, somewhat produced medially and slightly reflexed..... *menthae* Ckll.
 Scutellum closely punctured..... 24
24. Abdominal segments 1-3 red; wings, except extreme bases dusky, *slossoni* Vier.
 Segment 1, only, red; wings with only apical part dusky, *slossoni* var. *arenicola* n. var. 26
 Legs red..... 26
 Legs, at least femora, dark..... 31
26. Scutellum with a strong median projection..... *germana* Cress.
 Scutellum medially at most tuberculate..... 27
27. Third joint of antennæ hardly longer than second, about half as long as fourth..... *asteris* n. sp.
 Third joint of antennæ distinctly longer than second, almost as long as fourth..... 28
28. Last dorsal segment narrowed at almost a right angle; first abdominal segment closely punctured laterally..... *coquilletti* n. sp.
 Last dorsal segment not narrowed at almost a right angle, at most at a very obtuse angle..... 29
29. Last ventral segment very narrow, strongly bent downward; apex of last dorsal segment cephalad of notch of last ventral by one and one-half times the distance from notch to apex of segment..... *insita* Cress.
 Last ventral segment broad, the sides diverging basad, not strongly bent downward..... 30

30. Face with many erect brown bristle-like hairs among the appressed light ones; punctures of first abdominal segment laterad less than a puncture-width apart.....pratti n. sp.
Face without dark bristle-like hairs; first abdominal segment sparsely punctured laterad.....octodentata Say.
31. Last dorsal segment strongly angularly narrowed.....32
Last dorsal segment at most roundly narrowed.....33
32. "Part of last dorsal beyond constriction much larger than wide,"
ruffarsis Smith
"Part of last dorsal beyond constriction almost as wide as long"
comstockii Cress.
33. "Larger, 13 mm. long".....lucrosa Cress.
Smaller, hardly 12 mm. long; abdomen more slender and more closely punctured.....moesta Cress.

Cœlioxys obtusiventris new species.

Length about 11 mm. Black, the tegulæ and legs, except coxæ, ferruginous; face coarsely rugoso-punctate, vertex coarsely punctured; the punctures separated by much less than a puncture width; scape and pedicel (rest of antennæ missing) dark, obscurely reddish; face with white hair, dense along inner orbits, interspersed with long bristle-like hairs; mesoscutum and scutellum with punctures as on vertex; scutellum with a tubercle medially on posterior margin; lateral teeth long; mesonotum with pubescence along anterior margin and base of scutellum (badly worn); wings infuscated, apically more deeply so; abdomen sparsely, rather coarsely punctured; segments 1-5 with apical bands of white hair; second, third and fourth segments with transverse furrows, interrupted medially, apicad of these furrows there is an almost impunctate line, the extreme apices of these segments with a few punctures; last segment with a few scattered finer punctures, constricted, the apical portion covered with erect brown hairs, the extreme tip upturned; ventral segments, except apex of last, coarsely, closely punctured, last ventral very broad, not notched, medially produced into a long straight spine, with a very strong fringe of brown hair.

One specimen from the C. F. Baker collection with the record "Florida; Palm."

Type specimen Cat. No. 18217, U. S. N. M.

Although the single specimen is badly rubbed it is described since it is easily separated from the other species having the last dorsal segment turned up at apex and by that segment being almost impunctured. The spine at the apex of the segment is also much longer, in the other species being hardly more than an angulation of the apex.

Cœlioxys alternata Say.

In the table this species occurs twice since the fringe of hairs along the margin of the last ventral segment is not very strong and there might be some difficulty on this account if the species were not listed under both categories

***Cœlixys texana* Cresson.**

For comparison with *C. hunteri* camera lucida drawings of the last ventral segment and of antennal joints 2-5 of the female are given. (Fig. 1).

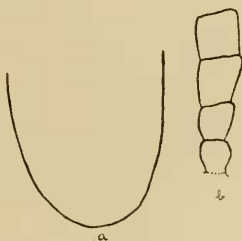


Fig. 1. *C. texana* Cress. (a) Last ventral segment
(b) antennal joints 2-5 of female.

In the antennæ, the third joint is shown to be hardly longer than the second (exclusive of bulbous base) and the fourth is distinctly longer than the third.

***Cœlixys hunteri* new species.**

Female. Length about 13-15 mm. Black, with red legs; the scape and pedicel, tubercles, carinate lateral edges of pronotum and tegulæ, reddish; lateral margins of basal abdominal segments sometimes obscurely reddish; face rather finely rugoso-punctate with a median impunctate line from in front of anterior ocellus to base of clypeus and indistinctly indicated on clypeus; anterior ocellus enclosed by two crescent-shaped raised impunctate areas which are finely reticulate; upper inner orbits each with a similar sculptured spot; face with rather abundant white hair, thicker along inner orbits and around antennæ;

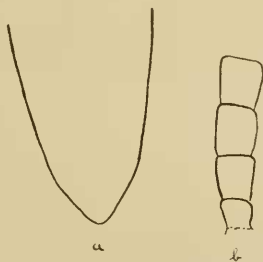


Fig. 2. *C. hunteri* Cwfd. (a) Last ventral segment
(b) antennal joints 2-5 of female.

second joint of antenna (not counting bulbous base) much shorter than third, the third about as long as fourth; (See Fig. 2, b); vertex and mesoscutum with large rather sparse punctures, each with an appressed

white hair; scutellum and its lateral spines shaped about as in *texana*; wings dusky, with the apical margins more deeply infuscated; coxæ black with more or less obscure reddish at apices; tarsi mostly dark; spines on anterior coxæ short; mesonotum at base and along lateral margins with lines of appressed, slightly ochreous hair, at base forming two spots near middle; scutellum at base with two transverse spots of similar pubescence; under side of scutellum at apex and metanotum with dense subappressed white hair; propodeum and pleuræ with long white hair; abdomen shiny, with sparse rather coarse punctures, last segment with a silky lustre the punctures longitudinally elongate, the last dorsal and ventral (Fig. 2, a) segments (Fig. 2, a) shaped about as in *alternata*; basal margin of segment one and apical margins of segments 1-5 with lines of appressed white pubescence; segments 2-4 with diagonal lateral lines of similar pubescence near bases.

Type-locality: Hearne, Texas.

Described from five females collected "at nests in bogs", July 23, 1906, by F. C. Bishopp.

The species is named in honor of Mr. W. D. Hunter in charge of the investigation from which these specimens were obtained.

Type—Specimen: Cat. No. 18218, U. S. N. M.

This species in the structure of the apical plates is near *texana* and *alternata*; the last has dark legs; *texana* has the last ventral segment with almost parallel sides and apically broadly rounded; *alternata* and *hunteri* have this segment narrowed apically and consequently pointed at apex; in *alternata* the last dorsal segment is shiny and with sparse small punctures.

Cœlixys piercei new species.

Female. Length about 9.5 mm. Black, including the legs, only the apical joints of the tarsi somewhat reddish; face rather finely rugosopunctate; antennæ black; vertex and mesoscutum closely, coarsely punctured, scutellum slightly coarser rugosopunctate; face and dorsum of thorax with slightly ochraceous pubescence, more abundant on sides of face and around antennæ and forming lines along anterior and lateral margins of mesoscutum and indistinctly so along base of scutellum; pleuræ with abundant lighter colored hair; lateral teeth of scutellum moderate in length, slightly incurved; tegulæ black; wings slightly dusky with the apical margins broadly deeply infuscated; abdomen closely, rather coarsely punctured, the last segment more closely and finely punctured, segments 2 and 3 with a deep and segments 4 and 5 with a shallow transverse furrow; segments 1-5 with apical bands of appressed white pubescence and segment 1 with the lateral margins with similar hair; base of first segment with an indistinct band of slightly ochraceous hair; last dorsal segment with a median longitudinal carina,

the segment rather suddenly constricted, near apex with a flattened projection on each side of carina (see fig. 3); last ventral segment extending a little beyond last dorsal, seen from below subtriangular in outline, the lateral edges straight, with only weak hair and without a projecting point.

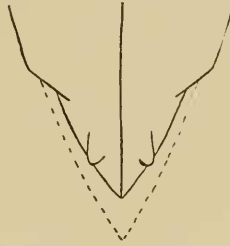


Fig. 3. *C. piercei* Cwfd. Last dorsal segment of female (last ventral indicated by dotted line).

Described from one female from Cotulla, Texas, April 17, 1906, on *Verbesina encelioides*, F. C. Pratt, collector.

Type—Specimen: Cat. No. 18219, U. S. N. M.

The two curious flattened projections on the last dorsal segment readily distinguish this from any species known to me.

Named in honor of Mr. W. Dwight Pierce who was actively interested in the work which resulted in the accumulation of the splendid collection of Texan Hymenoptera.

Cœlixys edita Cress.

This species was described from a male. Female from Texas which I have associated with this species are *deplanata* Cress. and I am inclined to think that *edita* should be classed as a synonym of this species, although the association of sexes I have made may be incorrect.

Cœlixys sculptifrons n. sp.

Female. Length about 11.5 mm. Black, with the tegulæ and the legs, except coxæ, ferruginous; clypeus rugoso-punctate with smaller punctures interspersed, the apical margin with five short teeth; face above insertion of antennæ coarsely, closely punctured, more sparsely so laterad of the ocelli; mesoscutum and scutellum coarsely punctured, the punctures except on disk of scutum crowded; lateral teeth of scutellum short, pointed; sides of face with dense long white subappressed pubescence, pubescence on clypeus finer and not so conspicuous; lateral and posterior margins of mesoscutum with indistinct lines of white appressed pubescence; pleuræ with dense long white hairs; wings dusky, with the apical margin more densely infuscated; apical margins of dorsal

and ventral abdominal segments 1-5 with bands of appressed white pubescence; first abdominal segment rather coarsely and closely punctured; second and third segments with distinct, complete, transverse impressions, the second with rather fine punctures basad of its impression, the punctures about a puncture width apart; apicad of the impression, the punctures sparse averaging two or more times a puncture width apart and finer and sparser toward middle, third segment basad of impression with the punctures somewhat wider apart than on base of second segment; apicad of the impression the punctures about as far apart as on apical part of second segment; fourth and fifth segments apically punctured about as apex of third segment; sixth segment with a distinct median longitudinal carina, basally finely punctured, the punctures slightly more than a puncture width apart; apically the punctures become slightly larger and crowded; near apex on each side of the median carina a depressed area bounded laterally by an elevated margin which is very indistinctly irregularly carinated; ventral segments 1-4 coarsely, closely punctured; fifth coarsely punctured at base, the apical part minutely very closely punctured; last ventral segment with the sides emarginate near apex.

Type-locality: Ithaca, New York.

Described from one specimen with the record, July, 1-7, from the collection of Mr. Nathan Banks.

Type—Specimen: Cat. No. 18220, U. S. N. M.

This species resembles *C. deplanata*, but differs as shown in the table and also by the sparser punctures on the abdominal segments apicad of the transverse impressions on second and third segments and by the sparse punctures on segments 4 and 5. In *deplanata* the punctures on the last segment are coarser at base, the impressions near apex are not so deep nor do they extend so far laterad.

This species differs from *C. immaculata* Ckll. described only in the male sex in the punctation of the second abdominal segment beyond the transverse impression and since the two sexes in this genus agree very closely in such characters, I do not think it possible for this species to be the same as the one described by Prof. Cockerell.

Cœlixys sayi Robertson.

C. octodentata Cresson (not Say).

The synonymy of Mr. Robertson of this species and of *C. octodentata* Say (*C. altilis* Cress.) is adopted for it is evident that he has correctly interpreted the original description of Say.

***Cœlixys banksi* n. sp.**

Female. Length about 11 mm. Black, femora black, the rest of the legs ferruginous with the middle of the tibiæ obscured with blackish and the tarsi dark toward apices; face above antennæ very coarsely punctured, the clypeus medially triangularly produced and somewhat reflexed; mesoscutum and scutellum very coarsely punctured, the punctures well separated on the disk; lateral teeth of scutellum rather short, pointed; scutellum gently rounded posteriorly; middle of face with appressed long white pubescence, clypeus with similar short pubescence; suture between mesoscutum and scutellum with a line of appressed white pubescence, a spot of similar hair at the posterior end of tegulæ; mesopleuræ with the anterior and posterior margins densely clothed with similar pubescence, as is the region immediately in front of and below tegulæ; the punctures of mesoscutum each with a long white delicate hair; tegulæ dark, obscurely reddish on disk and outer margin; wings dusky, with the apical margins more densely infuscated; dorsal and ventral segments 1-5 with apical bands of appressed white pubescence; first abdominal segment rather coarsely and sparsely punctured, the second and third with transverse impressions, basad of them the punctures about a puncture width apart, apicad of them the punctures slightly larger, laterad about as dense as basad of impressions but medially very sparse; fourth dorsal segment punctured about as third, with a transverse impression which is interrupted medially; fifth segment with the punctures finer, basally less than a puncture width apart, apically the punctures more than their own width apart; last dorsal segment with a median carina, the punctures close, the apical production of the last segment almost as long as the basal part of the segment; apex of last dorsal segment basad of notch of last ventral segment by about one and one-half times the length of the distance from notch to apex of segment; ventral segments 1-5 coarsely, closely punctured, punctures on fifth segment decreasing in size apicad; last ventral long, narrow, the apical portion bent downward, the sides near apex with a distinct notch.

Type-locality: Falls Church, Virginia.

One specimen, collected August 20, from the collection of Mr. Nathan Banks, after whom the species is named.

Type—Specimen: Cat. No. 18221, U. S. N. M.

The peculiar form of the clypeus easily distinguishes this species. In this table if this character be omitted the species would run to couplet no. 33, but the two species in that couplet both have the legs entirely black as well as the clypeus differently formed, etc.

Cœlioxys slossoni Viereck.

In the collection of the U. S. Nat. Mus. are two badly rubbed females which agree with Viereck's original description, one with the record "Palm Beach, Fla., 3-'00, collection C. F. Baker", the other without locality from the Ashmead collection. The Palm Beach specimen has the apex of the third segment dusky.

Cœlioxys slossoni arenicola new variety.

Female. Length about 13.5 mm. Differs only in having the abdomen, except basal segment, black (one has segments 2 and 3 in part obscurely reddish) and the wings subhyaline with dusky margins.

Male. Length 10.5 mm. Similar to the female in sculpture and color; the apex of the abdomen with 4 teeth the upper pair blunt somewhat flattened and divergent the lower pair longer pointed subparallel; base of last segment with a tooth on each side; fifth segment not toothed.

Type-locality: Brownsville, Texas, (April 17, 1895, C. H. T. Townsend, collector).

Allotyped male from San Diego, Texas.

Other localities: Calhoun, Co., Texas, J. D. Mitchell, collector, one female; Nuecestown, Texas, 4-28-'96, C. L. Marlatt, collector, one male; also two paratype females from Brownsville, Texas, and one male from San Diego, Texas.

Type—Specimen: Cat. No. 18222, U. S. N. M.

It is most probable that the species recorded from Galveston, Texas, by Brues* as *menthae* is this form.

Cœlioxys asteris new species.

Female. Length about 14 mm. (abdomen unduly extended). Black with the tegulae reddish-testaceous and the legs, except coxæ, ferruginous; face below antennæ finely rugoso-punctate, above antennæ coarsely punctured with an impunctured but lineolate area laterad of each lateral ocellus but none in front of and beside anterior ocellus; third joint of antennæ much shorter than fourth (see fig. 4, b,); reflexed lateral margins of pronotum strongly developed, translucent; mesoscutum with coarse, close punctures; scutellum rugoso-punctate and with a rather indistinct median longitudinal carina; lateral teeth of scutellum rather long, somewhat incurved, thick dorso-ventrad and carinate above along inner edge; wings deeply infuscated, more so along apical margins; abdomen finely, sparsely punctured, segments 2-4 each with a shallow transverse impression broadly interrupted medially; caudad of these furrows the segments almost impunctured; base of last segment more

* Entom. News, XIV, 83, 1903.

finely and closely punctured, the apical constricted portion finely rugoso-punctate; last ventral segment broad, notched near apex (see fig. 4, a,); ventral segments 1-4 rather coarsely punctured, five with similar punctures at base and fine ones at apex.

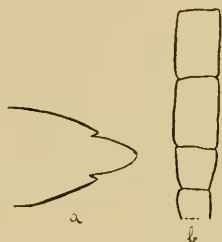


Fig. 4. *C. asteris* Cwfd. (a) Last ventral segment
(b) antennal joints 2-5 of female.

Type-locality: Victoria, Texas.

The type collected Nov. 6, 1904, by Mr. A. J. Leister, "on aster"; a paratopotype with the same date and collector is only about 11 mm. long.

This species resembles *octodentata* which has the third joint of the antennæ almost as long as the fourth.

Type—Specimen: Cat. No. 18223, U. S. N. M.

Cœlixys coquilletti new species.

Female. Length about 12 mm. Black with ferruginous tegulæ and legs; face below antennæ finely rugose, above, coarsely so without any smooth spots; third joint of antennæ almost as long as fourth; face with abundant pubescence at sides (rest worn ?); mesoscutum coarsely rugose all over; with a short lateral carina on each side near tegulæ; reflexed lateral margins of pronotum strongly elevated, translucent; an interrupted line of appressed white pubescence (worn ?) at base of mesoscutum, a line at base of scutellum and one at lateral margins of mesoscutum;

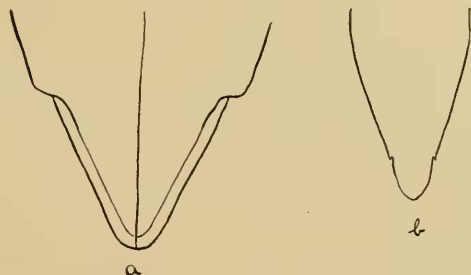


Fig. 5. *C. coquilletti* Cwfd. (a) Last dorsal segment
(b) last ventral segment of female.

scutellum slightly more finely rugose than mesoscutum, the lateral teeth rather long and slightly incurved; propodeum and pleuræ with long white hair; wings slightly dusky with the apical margins somewhat more so; spines on anterior coxæ long; abdomen with the venter largely reddish and the edges of dorsal segments close to venter somewhat reddish (to be seen only from below); first segment of abdomen closely punctured, the punctures laterad separated by less than a puncture width; segment 1 with a basal and segments 1-5 with white apical hair bands; segments 2 and 3 deeply and 4 rather shallowly transversely impressed; the segments basad of the impressions closely punctured, apicad of them very sparsely so; last dorsal segment suddenly angularly constricted, and with a median carina (see fig. 5a); last ventral notched at sides (see fig. 5b); ventral segments 1-5 with apical hair bands and coarsely punctured.

Habitat: Los Angeles, Co. Cal., (D. W. Coquillett, collector).

Type—Specimen: Cat. No. 18224, U. S. N. M.

In general this resembles *octodentata* but differs in the vertex being rugose and without smooth areas, in the rugose mesoscutum (in *octodentata* the punctures on the disk of the mesoscutum are well separated); in the abruptly narrowed last dorsal segment, and in the closely punctured first segment of the abdomen. In this last character it resembles *pratti* but differs in all the other characters quoted above; *pratti* has the mesoscutum more closely punctured than *octodentata* but it is not rugose. In the shape of the last dorsal segment this resembles *rufitarsus* from which it differs in addition to the difference in the color of the legs by the first segment being closely punctured, by having the second and third segments basad of the transverse impressions more closely punctured and by having the fifth ventral, except apex, with coarse punctures, etc.

Cœlixys insita Cresson.

The apex of the ventral segment as illustrated and marked on the figure is the approximate point to which the last dorsal segment comes (indicated by a U in the sketch). (Fig. 6.)



Fig. 6. *C. insita* Cress. Last ventral segment of female.

Cœlixys pratti new species.

Female. Length 11.5 mm. Very similar to *C. octodentata* but differs in the clypeus having many erect, brown, bristle-like hairs among the dense white pubescence, the eyes with longer, much denser and distinctly brownish pubescence, the punctures of the mesonotum somewhat finer and denser, the first abdominal segment with close punctures, those laterad separated by much less than a puncture width; fifth ventral abdominal segment with coarse punctures only at base.

One female with the record Kerrville, Texas, April 14, 1907, on *Marrubium vulgare*, H. Durham, collector.

Type—Specimen: Cat. No. 18225, U. S. N. M.

C. octodentata has the punctures of the mesonotum well separated medially, the first segment with the punctures toward sides separated by more than a puncture width and the fifth ventral segment with coarse punctures except on the apex.

This species is named for Mr. F. C. Pratt through whose efforts the large amount of material from the type-locality of this species was secured.

Cœlixys rufitarsis var. **rhois** Ckll.

This differs from the typical form only in having the tegulæ black and the veins of the wings darker than normal, and would run out in the table where the typical form does.